

the Examiner, in the "Response to Amendment" section (Office Action, page 1), the Examiner states that "[a]cknowledgement of the Declaration is *not* made because it has not been signed."

However, Applicants filed two executed Declarations Under 37 C.F.R. §1.132 in the USPTO on July 30, 2002, almost two months before the date of the Office Action. Copies of the executed §1.132 Declarations are enclosed, together with a copy of the USPTO date stamped filing receipt indicating receipt by the USPTO on July 30, 2002.

Still  
not  
signed

Additionally, it does not appear that the Examiner has commented at all with regard to the evidence in the specification, as was argued at page 6 of the Amendment filed July 11, 2002.

In view of the above, Applicants respectfully request that the Examiner vacate the incomplete Office Action dated September 24, 2002 and issue a new, complete office action, which fully considers the §1.132 Declarations filed July 30, 2002 and which fully considers Applicants' arguments as set forth in the Amendment and Remarks filed July 11, 2002.

## **II. The Rejections based on Oka et al.**

Claims 1-2 and 4-6 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oka et al., U.S. Patent 6,064,524.

Claim 3 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oka et al in view of Stein et al., U.S. Patent 6,322,860 B1.

First of all, Applicants' remarks and arguments as presented in the Amendment dated July 11, 2002 are hereby incorporated by references.

While, as previously set forth in the Amendment dated July 11, 2002, and briefly summarized below, it is believed the Examiner has not established a prima facie case of obviousness, to advance the prosecution of the case. Applicants have already provided evidence showing the improved properties of the presently claimed resin substrate for optical use over the materials of the references of the rejection.

With respect to claim 1, the Examiner admits that Oka et al. does not expressly describe the particular thickness range claimed, nor does Oka et al. show the particular surface roughness value claimed. The Examiner takes a broad approach in arguing that Oka et al. shows an optical functional multilayer structure comprising a layer of a cured epoxy resin, a polyvinyl alcohol film and a clear hard coat layer.

These rejections are respectfully traversed. As previously set forth, Applicants submit that independent claim 1 is patentable over Oka et al. for the following reasons.

Oka et al. relates to an antiglare-antireflection film which is quite different in its technical field from that of the present invention. The present invention relates to a resin substrate for optical use which is represented by a liquid-crystal cell substrate. The liquid-crystal cell substrate is required to have a surface roughness Ra lower than that of the antiglare-antireflection film. Although conventional resin substrates usually have a surface roughness Ra of 10 nm or higher, in the present invention, by forming a free surface by the casting and by setting the thickness to 100 to 800  $\mu\text{m}$ , surface smoothness can be greatly enhanced to accomplish an excellent surface roughness Ra of 0.8 nm or lower as recited in claim 1.

Applicants have previously prepared and submitted a Declaration Under 37 C.F.R. §1.132 in order to demonstrate that the TAC film and the matte PET film, identified and used in the examples of Oka et al., do not satisfy the surface roughness requirement of the present invention. Oka et al. is silent about the surface roughness Ra of the matte PET film having a fine uneven surface (Lumirror X-45). However, when Applicants obtained a sample of Lumirror X-45 and measured the surface roughness Ra on the front and back surfaces thereof, the surface roughness Ra was about 110 nm. Oka et al. is also silent about the surface roughness Ra of the TAC film (FT-UV-80). However, when Applicants obtained a sample of FT-UV-80 and measured the surface roughness Ra on the front and back surfaces thereof, the surface roughness Ra was about 3 nm.

As discussed above, Oka et al. is silent about a resin substrate for optical use which has a surface roughness Ra of 0.8 nm or lower on at least one side.

In particular, as to the comparative data of the specification, in the present invention, a special effect of forming a liquid crystal cell excellent in display quality including contrast and visibility using STN liquid crystals and ferroelectric liquid crystals can be taken by using a resin substrate for optical use which has a surface roughness Ra of 0.8 nm or lower on at least one side. The surprising effects are supported by the comparison between Example 1 and the Comparative Example in the specification of the present application. As a result, the liquid crystal cell substrate on one side of which was a resin substrate for optical use having a surface roughness Ra of 0.2 nm (0.2 nm on the free surface side, 10 nm on the belt side) as shown in Example 1 showed excellent display quality, whereas light leakage was observed in the liquid

crystal cell substrates on both sides of which were resin substrates for optical use having a surface roughness Ra of 15 nm, as shown in Comparative Example, due to alignment defects.

As described in the Comparative Example, in view of the fact that even when the resin substrate used in the cell of the Comparative Example has a surface roughness Ra of 15 nm, light leakage was observed due to alignment defects, Applicants submit that any liquid-crystal cell made from the antiglare-antireflection film as described in Example A1 of Oka et al. can never achieve superior display quality, because the surface roughness Ra of the antiglare-antireflection film (about 110 nm) is about 7 times larger than that of one side of the resin substrate used in the cell of the Comparative Example.

As further supporting evidence, co-inventor Mr. Yagi modified certain aspects of the Example and Comparative Example in the specification of the present application, and those results were also presented to the Examiner in the form of a Second Declaration Under 37 C.F.R. §1.132.

### **III. Conclusion**

Accordingly, the present invention as defined in claim 1 is not rendered *prima facie* obvious by Oka et al., because at a minimum the claimed surface roughness characteristic is not taught or suggested. In the alternative, the record evidence clearly rebuts any inference of *prima facie* obviousness, for the reasons indicated above.

With respect to the separate rejection based on dependent claim 3, Applicants submit that claim 3 is patentable for at least all of the reasons set forth for its base claim 1. Accordingly,

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upon allowance of claim 1 as requested above, all of the claims in this application should be found allowable by the Examiner.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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